WORKSHOP n° 4

The health challenge of an ageing European population

FRAMEWORK

During the last century life expectancy of a majority of European citizens has increased by more than 30 years. The ageing of our population is continuing; population growth is limited to the advanced ages and is inexorably linked to a procession of chronic diseases.

Due to increased life expectancy, any European knows that he may one day be affected by diseases whose incidence is associated with age. Given this fact, measures are to be consider such as:

1) develop prevention of these diseases in gerontology. This measure requires the combination of a psychosocial approach of ageing with medico-biological research;
2) take into account the elderly “fragility”. For patients who often suffer from multiple illnesses, this is a decisive stage and “decompensation” is facilitated by their age. This condition is a real challenge for years to come;
3) find ways and means to permit more dependent people to age well, to live as comfortably as possible. This implies to develop research on the quality of life criteria. It is within this context that we must consider research on the link between physical activity and maintaining the well-being, the quality of nutrition and health and the importance of social ties and especially the development of links between generations.

Given these general considerations related to ageing and without compiling in an exhaustive list, we must cite some diseases whose occurrence is more or less directly linked to age.

Loss of sensitivity, such as the decline of sight or decrease of hearing capacity can be prevented by early screening: the sooner these phenomena are diagnosed, the more we can delay their development, the more we can compensate for them and make them less disabling. To these sensory disorders can be added more or less severe motor deficiencies. In this area, actions already exist at European level, via the joint research program "Assistance to autonomy at home" (AAD) / Ambient Assited Living "(AAL), whose overall objective is to improve the quality of life of seniors, while strengthening the industrial base in Europe by the use of information and communication technologies.

Osteoporosis occurs among post-menopausal women. In this case also, the development of preventive measures based on early and repeated measurements of bone density, is necessary. Also for post-menopausal women, criteria for a good balance between the
prevention of symptoms associated with menopause and increased cancer risk caused by hormone replacement are to be found. Onco-geriatrics is an almost virgin field which should also be explored by both an epidemiologic and a fundamental biology approach.

Depression of the elderly is a huge problem. It is necessary to distinguish intrinsic depression from reactive depression, due mostly among the elderly to successive loss of loved people, and even of a pet. Within this nosological framework, it is important to learn how to assess the individual narcissistic resources needed to more or less easily cope with such stress. Finally, hypertension is the cause of vascular disorders, including in the brain, which cause 30% of cognitive disorders of the elderly.

Among these diseases, neurodegenerative diseases, closely associated with age, are becoming increasingly common in European society as a result of their social impact, as well as from the increase in their prevalence, almost exponential, and from the complexity of preventive or curative answers to be made. The main existing data cover all dementias, including Alzheimer's disease which represents about 70% of the cases. In this context, a European political mobilization on Alzheimer's disease would accelerate the search for solutions, both in the scientific field, that health and social.

When the burden of a disease has an impact on several generations, when a disease of behaviour has an impact on all those who interact with the sick person, when the costs of care and support may be impossible to be borne by individuals, and heavy for collective and individual insurance systems, when the vision we have of sick people is a challenge for their acceptance, research in psychology, sociology, economics are of major importance. Cultural differences, including representation of the context can here be a hindrance in the collaborations, but also be the starting point for comparisons, which may help transfer the observations of research to practice.

Given the low commitment of industry at this stage, it is only through a strong involvement of governments and EU that such action could emerge. In this context, a European mobilization at the political level on Alzheimer's disease would accelerate the search for solutions, both in the scientific field and in the health and social areas. This mobilization should then meet the requirements of ethics and evaluation of social and economic impact.

**OBJECTIVES**

- **Through a combination of psychosocial approach of ageing and biology and health research, create a collaborative dynamic among all actors concerned by Alzheimer and related diseases,**

- **Delay the onset of diseases whose incidence is associated with age,**

- **Take the disease into account in all its dimensions,**

- **Launch a European partnership to provide each citizen in a EU country with a transparent Alzheimer plan by the end of 2009.**
I - INITIATING THE PROCESS: A COMMON VISION 2020
For neurodegeneracy research

- As Alzheimer's disease in Europe has to face difficulties to find its place between neuroscience and degenerative diseases, aging and genetic diseases, it has come to be "nowhere". The urgency of research in cell biology, the comparative investigation of animal models, the standardization of imaging and biochemistry has been underestimated. It is particularly important at our current stage of knowledge on these diseases that the choice of themes should be made by the researchers themselves. Knowledge is the first way to overcome our fears.

- With the support of well informed European citizens and associations of families of patients, possibly using molecules for therapeutic or preventive use which may have little predictable profitability as a result of the dates of their of discovery or their use in other earlier indications, large prevention studies are to be initiated. Speed of implementation, transparency of choice, absence of cumbersome procedures, such is the demand of researchers within the ERA.

- Shorter term intervention strategies such as drug "prevention" of disease could be tested that would provide temporary answers before discovery of a treatment that could block the disease or even reverse it. Such a test intervention can only be carried out across several European countries in order to have sufficient power of analysis to give a significant answer which, if positive, could then be implemented through a broad prevention campaign.

- With a proper mobilization of researchers within the ERA, it is within our reach to develop a transparent Alzheimer plan for each citizen in a country of the European Union before the end of 2009.
II - IMPROVE EFFICIENCY OF THE ERA in neurodegeneracy research

BASIC PRINCIPLES

The various parameter of action were discussed in the Green Paper on the European Research Area. Within the ERA, an effective governance model must be articulated, in a coherent and readable manner, the three dimensions of the research systems, while enabling the involvement of all stakeholders:

- Starting at project level, with the research implementation function, which is, in Europe, mainly under the responsibility of national public research operators, universities at the research unit level, outreaching to industrial research units for innovation and development purpose,

- Via, at programme level, the programming function, whereby general orientations (defined at the political level) are translated into research programmes and resource allocations. In the member states, this function is implemented by programming agencies and, in some countries, including France, by research «organisms». At EU level, European technology platforms and Commission services are involved.

- Up to, at policy level, the orientation function, based on a vision shared among member states and EU institutions: Commission, Council and European Parliament, working according to current procedures, including: formal Council meetings, informal ministerial meetings, CREST, OMC, Ljubljana process, EP commissions and plenary sessions. Under all circumstances, the strategic plan is to be built and shared within the ERA.
A. REALIZATION OF RESEARCH AND IMPLEMENTATION OF INNOVATION PROCESS

Better carriers and more mobility: a European partnership for researchers

Diagnostic

The needs identified in research are converging toward a wide spectrum of disciplines: biology and health, including cell biology, comparative investigation of animal models and standardization of imaging or clinical studies. The vision of society and professionals on sick people is a real challenge and research in psychology, sociology, economics are of major importance. Cultural differences may be a hindrance in the collaborations, but also can be the starting point for mutual enrichment of knowledge and know-how.

Questions

- Will the "European Partnership for researchers" help the promotion and the development of interdisciplinary research teams and improve the attractiveness of the ERA?
- How to better develop a real partnership between research and training on a broad interdisciplinary scientific front and promote the mobility of personnel in research?
- How to attract and train in «Alzheimer's" skills and jobs?

Develop World class research Infrastructures

Diagnostic

Based on predictable demographic trends, it is necessary that each country benefits from reliable data for the annual incidence and prevalence of the disease. Likewise, the systematic comparison of all sources of information (certificates of death, hospitalizations, prescriptions, etc.) must be achieved, tapping in the multiple framework where there are studies on the elderly or on disabilities as well as studies on genetic diseases, which are affecting a growing number of young patient under forms that require specific research strategies as well as care and social support.

Each country must have accurate data to draw on trends over several decades, as it has been possible for cardiovascular diseases, thanks to the health data collected periodically in the registers².

Population data from testing prevention are necessary and, simultaneously, a specific organization dedicated to accelerate the development of early clinical drug interventions in humans is required.

Questions

- How to promote the sharing and exchange of data between Member States?
- How to accelerate the completion of clinical studies?

KNOWLEDGE SHARING

Diagnostic

Circulation of ideas, movement of researchers, movement of biological material, or movement of patients should be easier than in the past around heavy investments.

Despite the challenges of public health, drug manufacturers are still reluctant to invest to combat Alzheimer's disease. Indeed, market condition may well not be profitable in the medium term. Indeed, many of the necessary treatments use products whose property is held by laboratories, or even generics.

Questions

- Could the JTI IMI, “Innovative Medicines;” help strengthen the public-private partnership in the development of innovative medicines to fight Alzheimer’s disease?
- Is progress possible on that front without major advance on the issue of intellectual property rules in Europe?

² MONICA ; enquête de pratique EUROASPIRE.
Joint Programming

Diagnostic

Traditions and wealth are various in Europe, priorities may thus differ. But this topic mobilizes. Europeans know that diseases whose incidence is associated with age may one day affect them, because of the success that lies in the increase in life expectancy. No European country starts from nothing. The confrontation of ideas, initially conducted independently in each country and then shared across all the bodies concerned will be a source of improvement for each. The experience of Europe will be the starting point necessary to emerging countries when they will face the same reality, a consequence of longer life and progress in health.

Based on predictable demographic trends, it is necessary that each country can benefit from reliable data for the yearly incidence and prevalence of the disease.

A global vision, making it possible to have a reliable benchmark for decades to come, is essential to give new insight into the efforts to be made collectively. Knowledge is a first approach.

Question

- Are we ready to engage in a deliberate policy of collaboration and coordination of scientific programmes on Alzheimer's disease in Europe?

International Cooperation

Diagnostic

Given the demographic aspects of the disease, international cooperation must be strengthened with industrially developed countries, which face similar demographic issues (Canada, Australia, New Zealand and most importantly, Japan).

Questions

- How to create a dynamic of international cooperation between those involved in research in biology and health working on scientific projects on Alzheimer's disease and related diseases?
- With which foreign partners?
C. ORIENTATION

Within the European Union, this function is, at the higher level, entrusted by the treaties to
the co-decision of the Council and the Parliament. Within the ERA, national and even
regional policies are to be taken into account. Given the complexity, proper orientation can
only be achieved when it relies on a strategic vision to be build and shared by all
stakeholders.

The prerequisite for the necessary investment in neurodegeneracy research is to construct
by the end of 2008 a vision of shared objectives and translate them in terms of objectives for
research into Alzheimer's disease and related diseases by 2020. This commitment should be
made to remove obstacles and lead to a Community policy on research and innovation,
which takes into account other elements of context, such as social policy, training and health.

Annex 1 proposes elements for a shared vision of the evolution of the ageing European
population: from the pandemic scare to the compression of morbidity.

Questions

*Does the existing ERA governance provide for an agreed process to build and
update this vision?*

- How to build and share this vision within the ERA?
- How to involve civil society in the joint development of guidelines in this area,
  which particularly affects citizens?
Annex

Towards a shared vision of the evolution of the ageing European population: from the pandemic scare to the compression of morbidity

Aging is a natural biological phenomenon which is part of the development of all living beings. For the human species, studies agree to locate between one hundred and one hundred and ten years the theoretically impenetrable biological barrier. Improvement of the quality of life, according to European countries, through technological, scientific and medical progress, offers, as an opportunity for a child who is born in the twenty-first century, the hope of reaching this limit.

During the last century, our life expectancy has increased by more than 34 years. The average life expectancy at birth in EU 27 was respectively 75 and 81 years for boys and girls (with the persistence of disparities between geographic areas of Europe, particularly Eastern Europe).

This new phenomenon, pleasing as it may be at the individual level, involves a major change: the population is aging. Contrary to what one might imagine, this ageing will not induce a demographic decline but the only growing part of the population will be in advanced ages. While people aged over 65 now represent 16% of the European population, this share should reach 25% by 2030.

The quality of life, regardless of the age in question, is dependent on the health status of each individual. That's why researchers have identified quality indicators of "healthy" life and without disabilities. The World Health Organization, for example, has estimated healthy life expectancy in France to be about 73 years. This notion is important for all of us, but also for society as a whole, because the accumulation of disease and disability associated with ageing of our populations will have socio-economic consequences that should be anticipated now.

Demographers have proposed two extreme scenarios to try to imagine the consequences of this increase in life expectancy in our societies.

The first, pessimistic, is based on the finding that aging is accompanied by a retinue of disorders and diseases appearing in the second half of life. As the number of individuals likely to reach advanced age increases, the number of patients increases, resulting in a massive epidemic of diseases of all kinds to the humanities and social consequences catastrophic: this is the pandemic theory;

In contrast, the second scenario, resolutely optimistic, considers that advances in medicine, biology and technology will push the limits of the physiological barrier of life, and that disease prevention and care improvement will ensure a healthy life expectancy which will differ from our total life expectancy by only a few months, or even a few weeks. Thus can we live in full possession of our capacities as long as possible and not lose our autonomy until the very end of our lives: this is the compression of morbidity theory.

Between these two scenarios, our total life expectancy is progressing today globally at the same speed as our healthy life expectancy: this is the model of balanced evolution. The
A courtesy translation

challenge of medicine and research of this new century is to bring all human beings in our society to age according to the compression of morbidity model.

A. **The role of neurodegenerative diseases in ageing populations**

The neurodegenerative diseases play a major role in the various impacts of an ageing population.

1. These diseases are closely associated with age and their prevalence increase is almost exponential.

![Graph showing cases per 100 people against age (years)

- **Démence**
- **AVC**
- **Parkinson**

2. The number of these diseases for which treatments are available is very limited and, often, it is only a symptomatic treatment.

3. The average duration of evolution of these diseases is several years, between 2 and 10, during which, if untreated, they require social care that is cumbersome both for caregivers and for society as a whole.

4. Among these diseases, dementia presents a much faster rate of progress. In the main data covering all dementias, Alzheimer's disease represents about 70% of the cases.

We do not yet have reliable indicator of health, or registries that would give a precise and continuous estimate of the number of cases of dementia and Alzheimer's disease in Europe. The diagnosis of dementia is often not covered, including severe stages of the disease. No marker, even indirect, is currently available.

Given the magnitude of the impact of neurodegenerative diseases on Ageing, which is dominated by Alzheimer's disease, a European mobilization on this topic would accelerate the search for a solution both in the scientific, health and social field.

The ultimate goal is obviously to find a solution to cure the disease. However, the time necessary to the success of this research is not predictable. In the meantime, it is essential to implement solutions that can alleviate, even partially, the plight of families and the
economic burden brought about by the increasing prevalence of this disease simply because of population ageing.

Delaying the onset of Alzheimer's disease could significantly reduce the prevalence. One calculates that postponing the average age of onset of clinical disorders, by effective prevention methods (which remain to be identified) could reduce significantly the number of sick people, especially those with the most debilitating stages of the disease, which are the heaviest to bear socially and economically.

**B. A European-wide challenge**

Society and the American science began to mobilize together in the late 1970s, for persons suffering from Alzheimer's disease. The mobilization was late in the countries of the European Union. European research has made a certain scientific contribution starting from anatomical-clinical description of the disease in Germany in 1906, but it remains lower than the North American contributions in all European countries.

Europe has never enjoyed the structural support of an agency, such as the National Institute of Ageing in the USA. The European care systems have kept their specificities and their disparities. Not enough comparisons between different modes of access to care have been made between countries to measure their effectiveness, compare the procedures and know the satisfaction of users. The social accompaniment around sick people, whose autonomy gradually disappears in a decade, slowly structured on the basis of culturally very different systems, depending on the place given to family caregivers in southern Europe or professionals in northern Europe. The social systems differ from country to country, and in some countries, region to region, as is the great diversity of cases and geographical or economic conditions.

On Alzheimer's disease, the challenge today is therefore threefold in Europe.

The first challenge is scientific.

This is a chronic disabling disease, including possible mechanisms have been described, but no one has yet discovered a therapy that slows the development at variable speed of the disease. The neurons degenerate, the synaptic transmissions disappear, abnormal protein, fat and disease are increasingly likely to be identified: the gradual deterioration of memory and relationship functions is inevitable today. Patients and families are faced with a more and more cumbersome reality. Genetic, behavioural, cardiovascular and nutrition risk factors have been observed, but united or multifactor studies of prevention have not yet been conducted so as to be sure that the incidence and / or scalability of the disease can be diminished.

The second challenge is medical.

The general practitioners, specialists, and other caregivers have at their disposal batteries of tests, from simple to more complex, to explore the clinically brain function, to refine the brain imaging and to use biological tests for diagnosis. It is the organization of care system at all stages of the disease which poses a problem. How is the relationship between health care for the diagnosis and monitoring organization, in this gradual shift of a medical problem into a medical and social problem, characteristic of a progressive disease behaviour ? What therapeutic drug and non-drug have demonstrated effectiveness in appropriate randomized studies ? Is this efficiency judged according to the comfort of the sick, of those who live with her or him, or on the judgement of the evolution of the disease, or even on a recovery which is for now so far out of reach ?
The third challenge is social.

An environment must be created around the sick person and its family, which adapts to the evolution of abnormal behaviour in everyday life. Simple life site development and support for caregivers at the onset of illness, this adaptation mobilizes gradually more and more energy and skills. When should you consider leaving the house for life sites differently organised, even a house specially organized and employing sufficient trained and valued staff, faced with conditions of varying severity?

C. Requirements

These three challenges imply two common requirements.

The first requirement is ethical, everywhere. It is respect for the dignity and autonomy of a person who is increasingly dependent and always despite its lack of communication, a human being. In research, this implies informed consent to the participation in a study. For the medical staff, this means adapting support to validated preferences of the sick person, regardless of its difficulty of expression. To the accompaniment, this means debate on anticipated guidelines and their real value, on selecting a trustworthy person and the preservation of a quality of life at all stages of the disease without unacceptable suffering.

The second requirement is that of scientific evaluation. More than elsewhere, because the problem is so difficult, it is mandatory for the research to be original, feasible and useful. In turn, we must financially help, better and in a more transparent manner, the researchers, and we need to disseminate the results, without fraud and in full respect of their authors about the intellectual and financial reward. The clinical research projects must be of a size sufficient to make the results statistically valid, and one always tends to underestimate the number of people required to validate a diagnostic or a therapeutic drug and non-drug test. The evaluation of professional practices in the care and social support field must be permanent. It involves the production of Practical Recommendations which are readable applicable, updated and shared, particularly at European country level, because the general rules of care and support have little national specificity and are shareable, even if their adaptation to the care system of each country must take into account differences in the stakeholders, their training and their habits.